

LWG Responses to EPA General Comments on the Portland Harbor Draft RI Report

No.	Topic	Comment	LWG Comment Response
1	Indicator Chemicals	The RI Report focuses on indicator chemicals. EPA agreed to focus the presentation of site data on indicator chemicals for the ease of data presentation and clarity. <u>However, the RI Report should clearly describe the basis for focusing presentation materials on a subset of chemicals at the Site and note that other chemicals are present at the site that pose potentially unacceptable risk to human health and the environment. The RI Report should describe how the results of the risk assessment and ARARs evaluation are used to identify the chemicals to be carried into the FS for the purpose of identifying COCs.</u> Then the narrative can provide the rationale for why subsets of the larger contaminant list were developed for specific purposes in the RI Report.	Section 1.1 and Section 5.0 of the text have been revised to describe the basis for focusing presentation materials on a subset of chemicals and that other chemicals present at the site may pose risk.
2	R2 Site Charact. Sum. and Data Gaps Rpt	The draft RI Report relies significantly on the Comprehensive Round 2 Site Characterization Summary and Data Gaps Report (Round 2 Report). It should be noted that the Round 2 Report was not approved by EPA. Although the RI Report does not need to repeat all information presented in previous documents, it needs to be the primary source for the description of the data collected, nature and extent of contamination, and risk assessments.	Comment noted.
3		If the RI Report relies on any particular text, figure, appendix, or reference document found in the Round 2 Report or other preceding documents not formally approved by EPA and which is not placed into the RI Report, the RI Report must explicitly cite to the pages, figures, appendices, etc. of the previous report so that EPA can ascertain that it agrees and approves the reliance and use of such information described in the RI Report. Another way to address this issue is to place all relevant information from previous reports into the RI Report, thus, eliminating the need to provide explicit and complete cross references to the previous reports.	Comment noted. References to materials presented in previous reports not approved by EPA have been revised to cite explicitly the pages, figures, appendices, etc. in those previous reports.
4		<p>The Round 2 Report contained significant information that was not included in the RI Report, or was presented in a different, but less useful or complete manner. Examples of this information include:</p> <ul style="list-style-type: none">A number of useful data presentations in the Round 2 Report were not included or presented with less complete information, including subsurface sediment data presentations and biota maps. These are called out in our specific comments.	<p>The requested displays were included in the Round 2 report at the iAOPC-specific level. That detail level is not appropriate to the harbor-wide RI as the number of maps needed would be unwieldy. The core plot maps in the current document illustrate the broad trends, which is the purpose of this section.</p> <p>However, per agreement with EPA (documented in the November 18, 2010 Non-Directive Comment Key Issues Resolution Table), the LWG has provided in RI Appendix D1.2 subsurface sediment data maps at the detail provided in the Round 2 Report iAOPC maps for the following five chemicals:</p> <ul style="list-style-type: none">Total PCBsTotal DDxTCDD TEQTotal PAHsCarcinogenic PAHs BaPEq <p>Also see responses to Specific Comments that address data presentations, e.g., No. 230 and No. 258.</p>

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5		<ul style="list-style-type: none">Section 4 on sources focuses on general information and fails to provide the necessary detail regarding specific sites, especially in the main text and summary sections. The presentation of the sources seems to be reasonable in a general and conceptual manner, as is that of the general pathway (overwater, erosion, etc.). However, it does not provide the reader with a clear summary of the connection between the major river contamination problems and the apparently connected nearby sites which are or were the sources of that contamination.	<p>The LWG disagrees that the presentation is general in nature. Specific information about sources/sites/pathways is provided in text, tables, figures Section 4 does is not intended to present the connection between in-river contaminants and sources. Per the RI report outline fully vetted with EPA in 2008/2009, cross-media data discussions are presented in Section 10 (CSM) of the RI report. The agreed-upon RI outline was designed to build from physical setting and source discussions (Sections 3 and 4), to media-by-media data presentations (Section 5), through empirical loading and background analyses (Sections 6 and 7), to a presentation of the resulting conceptual understanding of the study area (Section 10). As a result, the RI report seems to contain the elements requested in EPA’s comment. Therefore, per agreement with EPA (documented in the November 18, 2010 Non-Directive Comment Key Issues Resolution Table), Section 4 of the report will not be revised to contain the information requested in this comment, because to do so would result in redundancy and a major reorganization/rewrite of the report.</p> <p>The connection issue requested by EPA is addressed in Section 10 (CSM) of the RI, both in the Draft RI and in the Draft Final RI per the revised outline agreed to by EPA/LWG as part of the RI revision discussions. Also, see response to the following comment.</p>
6		<ul style="list-style-type: none">The RI Report should present a summary of the main sources of contamination in the Study Area, the location of these sources and what the apparent upland sources are or were. In addition, set of simpler maps that summarizes the sources of contamination should be provided. For example, instead of multiple sets of maps on groundwater plumes with different depths and different contaminants (which the report admits may not be complete), it may be more useful to have a single map that shows all the groundwater plumes which have any contaminant above MCLs and AWQCs, across the entire Study Area, the related off-shore contamination areas, and the upland site names (similar to the present map 4.4-3h). A similar should approach be taken with each of the other media.	<p>Sections 4 and 10 of the RI Report have both been revised to clarify the presentation of information on sources of contamination to the Study Area, including historical sources, consistent with the provisions of prior agreements between the LWG and EPA and DEQ and in accordance with further agreements on agency comments on the Draft RI (documented in the November 18, 2010 Non-Directive Comment Key Issues Resolution Table). For example, new maps have been added to Section 3.2.1 depicting historical and current industrial land uses, and this information has also been incorporated into the cross-media CSM panels in Section 10.2.</p> <p>Screening upland media, as suggested by this and other EPA comments, would require an extensive effort to assemble and evaluate a database, to agree on screening criteria, and to develop a methodology that could be applied equitably to a large number of sites with a large range in data type and quality. According to a March 9, 2009 e-mail from Eric Blischke to the LWG, EPA agreed that a screening of upland data would not be required for the RI. However, comparisons of surface water and TZW data to promulgated criteria and other screening values have been provided in appendices to Section 5 of the revised RI Report.</p> <p>For additional details on the changes that have been incorporated into the revised RI Report to address EPA comments on sources of contamination and the CSM, please refer to responses to specific comments on Section 4 (SC81 through SC213) and Section 10.2 (SC304 through SC317).</p>
7		<ul style="list-style-type: none">The Draft RI Report should describe more clearly the suspected major sources of contamination at the site. In particular, the report should better summarize and highlight the actual sources and locations of contamination, both in the text and in associated maps. The draft RI fails to use the available data to describe the major	<p>See response to previous comment.</p>

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		source areas in a clear, concise and understandable manner. In particular, the RI Report must note that the scope of the Portland Harbor RI includes characterization of the entire hydrologic sub-basin, including the Study Area, the river, and its related upland areas, together with the different related media and contaminants (sediments, soils, surface water, groundwater, transition zone water, NAPL (non-aqueous phase liquids), etc.), and their dynamic interactions.	
8		<ul style="list-style-type: none">The updated CSM in Section 10 did not present key information from the Round 2 Report regarding potential sources of contamination. In many cases, the information on potential upland sources is more general than what was previously provided in Section 11.3 (CSM for iAOPCs) section as part of the Round 2 report or upland site summaries. EPA recognizes that the RI report is not focused on iAOPCs, but the information provided in this section of the Round 2 report is useful in understanding potential sources and pathways of contamination that may have impacted adjacent areas in the river. The CSM should reference relevant information and detail from previous CSM updates.	<p>The organization of the Draft RI differs from that used in the Round 2 report, particularly in regard to the Study Area-wide focus in the CSM Section 10 rather than the iAOPC focus included in Round 2 report Section 11. This refocuses results, by necessity, in a more general presentation of source information. This planned reorganization was fully vetted with EPA through development/review of the RI outline and associated discussions in 2008/2009. The subarea sources focus will return in the Draft FS in association with the defined AOPCs.</p> <p>Also, see responses to General Comments No. 6 and 7.</p>
9	Data Interpretation/Presentation	Many sections of the RI Report contain descriptions comparing quantitative results spatially and/or temporally. In many cases, terms such as “higher” or “less than” are used even though the comparison is based on the results of a statistical analysis. <u>The RI Report should clearly note when the use of qualifiers such as “higher” or “less than” are based on a statistically significant difference and when they are not.</u>	Comment noted. Qualifying statements such as “higher” or “less than” have been reviewed and, where needed, revised to distinguish statistical comparisons from observations of relative trends.
10		The RI Report also tends to combine data, calculations and interpretations into a single set of information. <u>The RI Report should clarify which information is based on actual data and which information is based on an interpretation or extrapolation from the data.</u> The RI Report tends to mix analytical data (water, sediment, or other) with grouped calculations (averages, areas, etc.), secondary data (leaching tests from a group of area wide samples) and modeling extrapolated actual data. The end result is that the RI Report does not distinguish data from interpretations and extrapolations of the data. It is important that the RI Report account appropriately for the uncertainty in the interpreted results.	Comment noted. The text has been reviewed and, where needed, clarified to indicate when information is based on actual data and when it is based on an interpretation or extrapolation from data.
11	Groundwater	<p>The RI documents present an impressive and broad set of different types of data that have been obtained and developed to understand the very large “Study Area.” With the sediment data set, it should be possible to define where the major sediment contamination problem areas and depths are located. However, the RI has not done a similarly good job of compiling or obtaining sufficient groundwater and Transition Zone Water (TZW) for the Study Area. Specific examples include:</p> <ul style="list-style-type: none">The draft RI Report does not describe groundwater as an exposure media, nor does it describe the risks posed to future drinking water users where groundwater exceeds non-zero MCLGs or MCLs. The RI Report should describe the ARAR screening process in addition to the baseline risk assessment, and should discuss the risks that are present based on ARAR screening, such as groundwater.	<p>The LWG objects to EPA’s characterization of the TZW investigation and analyses in these general comments (No. 11–14, 16, and 17) and in related specific comments on Section 4 and Appendix C2. In particular, the LWG believes that many of EPA’s comments on the groundwater pathway assessment and TZW sampling program do not reflect or acknowledge EPA’s agreed-upon approach to groundwater/TZW characterization and analysis in the RI. In contrast to EPA’s comments, the LWG believes the RI provides a clear, complete, and objective evaluation of this pathway and potential exposures of human and ecological receptors to groundwater- and TZW-related COIs within the in-water portion of the site, entirely consistent with those prior agreements.</p> <p>During meetings held with EPA, DEQ, and LWG on October 15 and October 27, 2010 to discuss and resolve comments on the draft RI, EPA acknowledged that the TZW study conducted by the LWG was adequate in terms of overall scope for the RI, and that no</p>

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			<p>additional site-specific TZW data or data evaluation is needed. The LWG agreed to make the following changes to the TZW discussion in the RI:</p> <ol style="list-style-type: none">1) Clearly acknowledge limitations and strengths of the TZW evaluation approach.2) Obtain GW updates from DEQ on post-RI work for specific sites and revise RI discussions as warranted.3) Add more information on upland groundwater site status and GWPA approach/study objectives from Appendix C2 into the RI Section 4 TZW subsection.4) Add comparisons of TZW data to established screening criteria in appendices to Section 5. <p>For additional details, please see responses to specific comments on groundwater sources to the Study Area (Section 4.4.3; Specific Comments 187 through 200) and on the groundwater pathway assessment conducted for the RI (Appendix C2; Specific Comments 335 through 361).</p>
12		<ul style="list-style-type: none">• The draft RI Report mischaracterizes the groundwater assessment sampling and makes unsupported conclusions about how many plumes are discharging to the river due to the lack of sufficient data. Given the lack of groundwater data on many sites, limited conclusions can be drawn from the samples that were taken in the river. The RI Report indicates that 113 sites have the likelihood of having contaminated groundwater. However, additional data were not collected further characterize these facilities as part of this RI. The RI Report must accurately describe the scope and purpose of the groundwater sampling that was done and provide a summary of the potential for groundwater discharges to the Portland Harbor site for the 113 sites identified as potentially having groundwater contamination.	<p>See response to General Comment No. 11. Section 4.4.3 of the RI Report has been revised to provide additional detail on the status of the 113 sites and the process for selecting sites for inclusion in the TZW investigation performed under the RI groundwater pathway assessment.</p>
13		<ul style="list-style-type: none">• The RI Report should note that the groundwater pathway analysis focused on sites where existing information confirmed that contaminated groundwater was likely discharging to the river. The RI Report must state that the transition zone samples collected during this evaluation confirmed that contaminated groundwater is discharging to the river and does impact sediments and surface water. The RI Report needs to state that possible contaminated groundwater discharging to the river has not been fully characterized throughout the site, and that data gaps will need to be filled in during remedial design.	<p>See response to General Comment No. 11.</p>
14		<ul style="list-style-type: none">• The RI Report tends to discount groundwater sources at the site. For example, only a limited number of contaminated groundwater plumes discussed are discussed; many of the groundwater COCs are not discussed; and the baseline ecological risk assessments eliminated TZW data, compared to water TRVs, as a line of evidence for estimating risks to the benthic community. For each potential source area (upland and in-river sources), the entire combination of groundwater, sediment, and soil contaminants should be fully evaluated.	<p>See response to General Comment No. 11. The LWG disagrees that the RI Report discounts groundwater sources at the site. Groundwater sources are thoroughly and objectively evaluated in the RI Report.</p>
15		<ul style="list-style-type: none">• It is not clear whether many of the LWG “upland site summaries” have been revised	<p>EPA Round 2 Report comments on the Round 2 Report “source table” (Table 5.1-2) were</p>

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		based on EPA comments submitted and updated for some of the major sites. Using older information may miss many plumes that may have been better characterized since that work was done. It is likely that, for example, sites such as Arkema, Rhone-Poulenc, GASCO, Siltronic, U.S. Moorings, Terminal 4, Oregon Steel Mills (and the related Terminal 5), and Schnitzer adjacent to the International Slip have had significant changes in what has been found with additional site characterization and remedial activities.	incorporated into the RI. Updated site information compiled by LWG and DEQ for the FS source table, with respect to current sources, has been incorporated into RI revisions.
16		<ul style="list-style-type: none">The RI Report does not account for groundwater plumes which are not located in sites adjacent to the river that may continue to impact the river through inflow to the stormwater discharge pipes, or the pipe bedding, and other related pathways. Note that this is the case in sites adjacent to the International Slip and probably in many other areas if these sites had been considered as sources and the entire area had been characterized more completely. This issue has already been documented in the Arkema and Rhone Poulenc areas, where the stormwater pipes have had to be relined. This issue concerns both groundwater and stormwater system connections, and not simply the proximity of contaminant plumes to the river.	See response to General Comment No. 11. As documented in Section 4.4.3 of the revised RI Report, EPA and DEQ determined which upland sites would require detailed assessment as part of the groundwater pathway assessment carried out for the RI. Preferential flow paths, including those cited in this comment, were considered in the site selection process. Furthermore, offshore investigations <i>were</i> completed during the RI for both the Arkema site and the Rhone Poulenc site (which is not adjacent to the river). The revised RI Report acknowledges the possibility that other complete groundwater pathways (including preferential pathways via storm drain lines or pipe bedding) to the LWR may exist and be identified in the future. EPA and DEQ agreed during the Round 3 RI data gaps identification process that any further evaluation of groundwater transport to the LWR in such instances would be conducted separately from the RI under DEQ’s JSCS program.
17		<ul style="list-style-type: none">The report needs to acknowledge that the groundwater evaluation is further limited by not following known plumes from upland sites and sampling those plumes where they would discharge into the river. The TZW samples were collected in areas where groundwater contamination was likely based on an evaluation of groundwater discharge areas within the river and an assessment of upland groundwater contaminant plumes rather than tracking groundwater contamination in three dimensions from the source to the discharge zones in the river. The RI Report should compare the TZW sampling conducted for the Arkema and Siltronic sources and flow paths into the river (which did find the groundwater discharges, TZW impacts, and sediment problem areas) to the samples done in many of the other TZW areas; while this provides documentation of TZW contamination, it does not document the flow paths or show whether the contamination is at the center of those plumes or at the edges (for example the results from the sampling for Rhone Poulenc plumes under the railroad bridge area, or some of the bulk fuel facility sampling locations). The conclusion should be that TZW has been found to be impacted in many locations, but clearly identify the limitations of the characterization process.	See response to General Comment No. 11. The approach to characterization of TZW was thoroughly vetted with and approved by EPA through the Pilot Study and prior to Round 2 sampling. The LWG is not responsible for additional detailed characterization of plumes in the upland areas. Instead, the LWG used all available information to focus and execute a study to support an appropriately detailed assessment of this pathway for the purposes of the RI.
18		<ul style="list-style-type: none">The draft RI Report does not describe groundwater as an exposure media, nor does it describe the risks posed to future drinking water users where groundwater exceeds non-zero MCLGs or MCLs. The RI Report should describe the ARAR screening process in addition to the baseline risk assessment, and should discuss the risks that are present based on ARAR screening, such as groundwater.	See response to General Comment No. 11. Comparisons of TZW data to non-zero MCLGs, MCL, and EPA regional tap water screening criteria have been provided in appendices to Section 5 of the revised RI Report. Note, however, that it is not consistent with guidance to include an ARAR evaluation in the risk assessment. EPA Guidance (EPA/540/G-89/004, 1988 and Contaminated Sediment Remediation Guidance; EPA-540-R-05-012, 2005) indicates that ARAR evaluations should be conducted as part of the FS process (i.e., EPA

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			<p>2005; Section 3.3).</p> <p>This comment also conflicts with an e-mail from Chip Humphrey (EPA) to Jim McKenna dated April 21, 2010 (regarding resolution of risk assessment Comment No. 10 of EPA’s January 23, 2010 letter). The EPA stated that (emphasis added in italics):</p> <p>“- The LWG will <i>screen</i> all surface water sample results (including the near bottom samples) against non-zero MCLGS, MCLs and RSLs in the risk assessment, and the results will be included in <i>the uncertainty section</i></p> <p>- Sample results that exceed <i>screening levels</i> will be carried into the FS for <i>consideration as part of the contaminant mobility evaluation</i></p> <p>- The ARARs evaluation and evaluation of the surface water drinking water pathway will be based on <i>depth-integrated samples</i> in accordance with our previous direction.”</p> <p>The approach to screening presented in the EPA April 21, 2010 e-mail is the approach used in the baseline risk assessment.</p>
19	Modeling	Agency comments on the HST model (provided July 2009) recommended changes that may yield significantly different results and that will likely require recalibration as well as re-running the validation and the sensitivity analysis. The next draft of the RI should incorporate the agencies’ recommended changes from July 2009 and any subsequent changes based on our current discussion regarding the contaminant fate and transport model. EPA expects that a revised HST/F&T model will be included with the draft FS.	The LWG fully revised the physical sediment transport module of the HST model in 2009 as part of the FS modeling effort. The outputs from this EPA-approved fully calibrated model are incorporated into the flood scenarios presented in Section 3 of the Draft Final RI and also have been incorporated into Section 10 (CSM) data products, as appropriate.
20	Section 11	Section 11 is a repeat of material presented elsewhere in the Draft RI Report. Section 10 already summarizes all the preceding sections into a conceptual site model, and the executive summary already is a shorter, more reader-friendly summary of the whole document. As a result, this section should be – deleted with the exception of Section 11.11 which focuses on conclusions and next steps and should become the conclusion section of the RI Report.	Specific Comment No. 318 requests that Section 11.1 as well as Section 11.11 be retained. Therefore, Section 11 of the revised RI Report has been modified per Specific Comment No. 318.

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